(K^{trans}) and the plaque v_p and K^{trans}. PET/CT was used to measure the target-to-background ratio (TBR) to reflect the degree of plaque inflammation.

RESULTS TBR value significantly correlated with adventitial K^{trans} (r=0.698, P<0.01) and plaque K^{trans} (r=0.492, P=0.01) in the symptomatic plaques(n=49), but not in the contralateral asymptomatic ones(n=32) (r=0.17, P=0.3, adventitialK^{trans}, r=0.262, P=0.107, plaque K^{trans}). And the significantly correlation between adventitial K^{trans} and TBR remained after adjusting for some confounding factors (ApoB, age) (β=0.377, P =0.012). In addition, in the symptomatic plaques the correlation coefficient between adventitial K^{trans} and TBR is larger than that between plaque K^{trans} and TBR (r=0.689 vs. r=0,492,P<0.01.difference in r, *Steiger's Z test*).

CONCLUSIONS Adventitial perfusion is independently associated with the carotid plaque inflammation in symptomatic plaques, but not in asymptomatic plaques. Compared to plaque perfusion, its adventitial perfusion get by DCE-MRI may be a better surrogate for FDG imaging of plaque inflammation in the symptomatic plaques.

GW26-e3992

Long-term Effects of Pericardiectomy on Left Ventricular Mechanics in Patients with Constrictive Pericarditis

Li Li,[1] Youbin Deng[1]
[1]Department of Medical Ultrasound, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology

OBJECTIVES The purposes of this study were to evaluate long-term changes in left ventricular (LV) mechanics after pericardiectomy in patients with constrictive pericarditis (CP); to correlate postoperative LV mechanics determined by speckle tracking echocardiography with clinical status.

METHODS A total of 24 patients with CP underwent speckle tracking echocardiography 1 week before and 1, 6 and 12 months after pericardiectomy; and 23 healthy subjects were served as control subjects. The procedure was performed to obtain global and regional LV longitudinal, circumferential, radial strain, LV torsion and LV lateral/septal longitudinal strain ratio.

RESULTS Patients with CP had decreased global LV longitudinal, circumferential and radial strains, and decreased LV torsion when compared with control subjects. Although global LV longitudinal and circumferential strains obtained 1 month after pericardiectomy increased when compared with those for pre-pericardiectomy, they were still significantly lower than those for control subjects. Further improvements in global LV longitudinal, circumferential and radial strains occurred with time with normalization of global LV longitudinal and radial strains 12 months after pericardiectomy, but global circumferential strain obtained 12 months after pericardiectomy was still lower than that for control subjects. LV torsion remained unchanged after pericardiectomy. In addition, the improvements in global LV circumferential strain and septal e' after pericardiectomy correlated well with clinical symptoms.

CONCLUSIONS Global LV longitudinal, radial and circumferential strains presented gradual increases over time with normalization of global LV longitudinal and radial strains 12 months after pericardiectomy, but global LV circumferential strain obtained 12 months after pericardiectomy was still lower than that for control subjects. LV torsion remained unchanged after pericardiectomy. In addition, the change in global LV circumferential strain after pericardiectomy correlated well with clinical symptoms. These findings suggest that the global LV circumferential strain may be a promising parameter in the evaluation of the effectiveness of pericardiectomy.

GW26-e4695

The value of three-dimensional spherical index in assessing different type of left ventricular remodeling

Hao Yang, Zhi Zeng
Department of Cardiology, West China Hospital of Sichuan University, China

OBJECTIVES To investigate the value of three-dimensional spherical index (3D SpI) in assessing different type of left ventricular (LV) remodeling in patients with four different cardiovascular diseases; and to find a suitable reference intervals of 3D SpI in identifying LV remodeling.

METHODS One hundred and seven patients with 4 different diseases: aortic regurgitation (n = 27); aortic valve stenosis (n = 20); hypertension (n = 20); acute myocardial infarction (n = 20); non-acute myocardial infarction (n = 20); and 46 healthy controls were recruited. All 153 subjects underwent conventional and real-time 3-dimensional echocardiographic examination. 3D SpI was measured using an auto 4D LVQ software.

RESULTS We found 3D SpI were significant higher in the AR (0.46±0.12, P <0.001) and N-AMI group (0.42±0.05, p <0.001) than in controls (0.31±0.06). But there were no significant differences observed in other groups. The reference critical value of 3D SpI in AR or N-AMI for identifying LV remodeling was >0.302, >0.321 respectively.

CONCLUSIONS This study indicated 3D SpI can detect left ventricular eccentric remodeling due to volume overload or the chronic global left ventricular remodeling after myocardial infarction, but cannot reflect concentric hypertrophy caused by pressure overload or regional myocardial injury caused by AMI.

GW26-e4746

Quantification of Compacted Myocardial T1 in Isolated Left Ventricular Non-compaction and Its Relation to Disease Severity: A 3.0T MR Imaging Study

Hongmei Zhou,[1] Xue Lin,[1] Haiyan Ding,[2] Xihai Zhao,[2] Ligang Fang,[1] Quan Fang[1]
[1]Cardiology, Peking Union Medical College Hospital, Beijing, China; [2]Center for Biomedical Imaging Research, Department of Biomedical Engineering, Tsinghua University, Beijing China

OBJECTIVES To investigate the characteristic of isolated left ventricular non-compaction (LVNC) using non-contrast myocardial T1 mapping and its relationship with the severity of the disease.

METHODS Twenty-nine patients (mean age, 41±15 years) and 8 healthy volunteers (mean age, 51±19 years) were recruited in this study. All subjects underwent CMR on a Philips 3.0T MR scanner with 32-channel cardiac coil. Whole LV short axis cine and non-contrast T1 mapping utilizing modified look-locker inversion recovery sequence (MOLLI) were acquired. The left ventricular ejection fraction (LVEF) was measured from cine images using commercialized software (Qmass, Medis, Leiden, the Netherlands).

Compacted myocardium T1 was averaged per subject. Patients were further stratified into normal LVEF group (LVEF≥50%, n = 12) and reduced LVEF group (LVEF<50%, n=17) based on EF.

Statistical analysis of T1 values between control subjects, normal LVEF patients and reduced LVEF patients was performed using an unpaired, two-tailed Student's t test with a significance level of 0.05.

RESULTS All patients fulfilled the Petersen's CMR diagnostic criteria of LVNC. Compacted myocardial T1 value of patients with reduced LVEF was significantly higher than that of patients with normal LVEF, and that of the control subjects.

The mean LVEFs (T1 values) of the control and patient groups were 63.7±5.4% (1077.6.8±44.3ms ms) and 44.6±15.3% (1156.8±49.2ms ms), respectively. In the patients, the mean LVEFs (T1 values) of normal and reduced LVEF groups were 57.6±4.2% (1132.3±42.8 ms) and 32.4±11.2% (1174.0±49.0ms), respectively.

Statistical difference of mean myocardial T1 was found between patient and control groups with P<0.001. P-value between normal LVEF patients and control groups was 0.012. In addition, significant difference was found between normal and reduced LVEF patient groups with P<0.001

CONCLUSIONS CMR with non-contrast T1 mapping enables characterization of myocardial tissue changes in patients with LVNC as compared to healthy volunteers. The difference of the compacted myocardial T1 value between normal LVEF patients and control groups shows that T1 value is potentially more sensitive for detecting early tissue changes than LVEF. In addition, the difference of myocardial T1 value between LVNC patients with normal and reduced EF indicates that myocardial T1 quantification may have the potential to stratify the severity of LVNC.

GW26-e0260

Diagnostic value of transthoracic echocardiography in patients with coarctation of aorta: The Chinese experience in 53 patients studied between 2008 and 2012 in one major medical center

Zhenxing Sun, Mingxing Xie
Department of Ultrasonography, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

OBJECTIVES Although aortography is well known as the "gold standard" for the diagnosis of coarctation of aorta (CoA), the method is

invasive, expensive and not readily accepted by some patients. Ultrasound diagnosis for CoA is non-invasive, inexpensive, readily accepted by every patient, and can be repeated as frequently as necessary. The purpose of this presentation is to evaluate the applicability of transthoracic echocardiography for the diagnosis of CoA.

METHODS The echocardiographic appearances of 53 patients with CoA who had undergone surgery during a 5-year period from January 2008 to October 2012 were analyzed retrospectively, and the results were compared with findings at surgery and/or aortography.

RESULTS Fifty-three patients with CoA include six with isolated CoA and 47 of CoA associated with other cardiac anomalies. Of the 53 operated patients, 48 were correctly diagnosed preoperatively by echocardiography, while two were misdiagnosed as interrupted aortic arch and the diagnosis was missed in three other patients. Thus the diagnostic accuracy rate was 90.6%, and the misdiagnosis rate was 9.4%.

CONCLUSIONS Preoperative echocardiographic evaluation offers very satisfactory anatomic assessment in most patients with CoA. It makes preoperative angiography unnecessary. Thus transthoracic echocardiography should be the first-line method for the diagnosis of coarctation of the aorta.

GW26-e1088

Relationship between myocardial systolic function and myocardial perfusion in different stages in a porcine experimental myocardial infarction

Yuming Mu, Yuanyuan Yang
Depeartment of Echocardiogrophy, the First Affiliated Hospital of Xingjiang Medical University

OBJECTIVES Evaluation of relationship between myocardial systolic function and myocardial perfusion in myocardial infarction pigs model by real-time myocardial ultrasonic imaging technology.

METHODS Twenty-three pigs were randomly divided into experimental group and control group, the control group, only thoracotomy, the experimental group ligating the left anterior descending coronary artery in acute myocardial infarction model preparation; after successful model animal according to different time periods were randomly divided into 6 groups of 3, RT-MCE, from MCE reperfusion filling curve obtained plateau intensity (A), the curve rising rate (β) and myocardial blood flow (A×β) and other parameters were analyzed. Technology STI determination of left ventricular short axis left ventricular papillary muscle level whole circumferential strain (GCS), the radial strain (GRS) and left ventricular apex four-chamber view the overall longitudinal strain (GLS)

RESULTS Compared to the control group, each group A, β, A×β, GCS, GRS, GLS and LVEF were decreased; experimental LVEF, GCS, GRS and GLS with A×β correlation ($r = 0.510$, $r = 0.493$, $r = 0.659$ and $r = 0.690$, $P < 0.05$). The experimental group LVEF, GCS, GRS, GLS value had no correlation with A, had correlation with β($r = 0.550$, $r = 0.595$, $r = 0.595$, $r = 0.629$, $P < 0.05$).

CONCLUSIONS Real-time myocardial contrast echocardiography combined with 2D speckle tracking technology found in different time periods of myocardial contractility of myocardial infarction and cardiac function in pigs perfusion changes, although relevant, function and perfusion changes occur is not synchronized, myocardial contractile function earlier than and weight change in myocardial perfusion

GW26-e1368

Evaluation of carotid artery elasticity and its related factors in patients with acute ischemic stroke using shear wave elastography

Zhaojun Li, Xianghong Luo
Department of Ultrasound, the First People's Hospital Affiliated to Shanghai Jiao Tong University

OBJECTIVES Longitudinal elastic modulus in patients with acute ischemic stroke were measured by shear wave. The technique of feasibility and its related factors were studied initially.

METHODS There were 179 cases with acute ischemic stroke (AIS) including 103 cases with large artery atherosclerosis (LAA) and 76 cases with lacunar infarction (LAC) classified according to the TOAST classification. There were 168 age and sex-matched cases were as control group. Pulse wave velocity (PWV) of bilateral carotid was measured by RF ultrasound technology. The 20 areas of superficial walls of bilateral carotid artery were analyzed by real-time shear wave elastography (SWE), and the average values of longitudinal average elastic modulus (MEmean), the maximum elastic modulus (MEmax) and minimum elastic modulus (MEmin). The independent factors of MEmean were analyzed using multiple linear regression analysis.

RESULTS ①Compared with the control group, PWV in patients with AIS was increased ($P < 0.05$). ②The MEmax and MEmean of carotid artery in patients with AIS were more than those in the control group ($P < 0.05$). ③Age, systolic blood pressure, PWV and LDL were positively related to MEmean ($r = 0.221$, $r = 0.174$, $r = 0.776$ and $r = 0.173$, $P < 0.05$), and were independent factors for MEmean.

CONCLUSIONS SWE can evaluated the arterial stiffness using longitudinal elastic modulus of carotid. Age, systolic blood pressure, PWV and LDL were independent factors for longitudinal elastic modulus.

GW26-e1470

Feasibility analysis of examination of normal fetal subclavian arteries with ultrasonic eFLOW technique

Hui Zhang,[1] Erhong Zhang,[2] Yongjiang Mao,[1] Guanghui Guo,[1] Rongqin Zheng[1]
[1]Department of Ultrasound, The Third Affiliated Hospital of Sun Yat-Sen University; [2]Department of Infertility and Sexual Medicine, The Third Affiliated Hospital of Sun Yat-Sen University

OBJECTIVES To examine the bilateral fetal subclavian arteries using ultrasonic eFLOW technology and thus analyze the feasibility of examination of the fetal subclavian arteries as part of routine fetal cardiovascular examination.

METHODS In total 1086 fetuses in weeks 20 to 40 of gestation were selected for ultrasonic fetal heart examination in our hospital from August 2010 to August 2014. We used a ProSound Alpha 10 ultrasound system(Hitachi-Aloka, Tokyo, Japan) and type 9130 low-frequency convex array probe (Hitachi-Aloka, Tokyo, Japan). The built-in obstetric and fetal heart software was selected. Images were enlarged for maximal clarity. The bilateral subclavian arteries were ultrasonographically examined in 1086 fetuses. The detection rate of the bilateral subclavian arteries within the regular time of 5 minutes was calculated.

RESULTS Among all 1086 fetuses, the RSA was detected within 5 minutes in 1011 fetuses (detection rate, 93.09%), and the LSA was detected within 5 minutes in 943 fetuses (detection rate, 86.83%). The highest detection rates were observed in weeks 20 and 21 of gestation, at which times they reached 100%. The detection rates for both the RSA and LSA remained high during weeks 23 to 29 of gestation. However, the detection rate of the RSA was significantly higher than that of the LSA from weeks 30 to 33 of gestation ($P < 0.05$). In week 34 of gestation, the detection rates of the LSA (84.21% vs. 67.35%, $P < 0.05$) and RSA (94.74% vs. 80.85%, $P < 0.05$) decreased significantly.

CONCLUSIONS The detection rate of the bilateral fetal subclavian arteries before week 33 of gestation is very high. Therefore, detection of the subclavian arteries can be included in routine fetal heart examinations. Evaluation of the bilateral subclavian arteries should not be arbitrarily omitted, because it is an important part of screening for fetal chromosomal abnormalities.

GW26-e2134

Relationship between the location of echogenic intracardiac foci and fetal cardiac anomalies

Yong Guo, Yihua He
Department of Ultrasound, Beijing Anzhen Hospital, Capital Medical University

OBJECTIVES To explore the relationship between the location of echogenic intracardiac foci(EIF) and fetal cardiac anomalies.

METHODS Retrospective study of clinical files at our fetal cardiac service centers from August 2010 to July 2014. All cases that had at least one echogenic focus were selected for our study. Maternal age, gestational age, reason for referral, size, number and location of EIF, cardiac defects were analyzed.

RESULTS A total of 1045 fetuses with EIF were enrolled in our study. Of them, 989 (94.6%) EIF were located in the left ventricle, while 36 (3.4%) were bilateral and 20 (1.9%) were right-sided. There were 62 of 989 fetuses (6.3%) with cardiac anomalies in left-sided group, 1 of 36 fetuses (2.8%) in bilateral group and 4 of 20 fetuses (20%) in right-sided group. Fetuses with right-sided EIF had significantly more cardiac anomalies compared with the other two groups (P=0.01, P=0.03). And there were no statistically significant differences between left-sided and bilateral groups (P=0.39).